



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/287,570	04/06/1999	AKIHISA USHIROKAWA	Q53866	6456

7590 06/02/2004

SUGHRUE MION ZINN
MACPEAK & SEAS
2100 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20037

EXAMINER

ABELSON, RONALD B

ART UNIT	PAPER NUMBER
----------	--------------

2666

DATE MAILED: 06/02/2004

22

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/287,570

Applicant(s)

USHIROKAWA ET AL.

Examiner

Ronald Abelson

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) See Continuation Sheet is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 21.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. 22.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2666

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 27, and 51, recite the limitation "said time interval" in line 9. There is insufficient antecedent basis for this limitation in the claim.

3. Claims 20, 23, 68, 71, recite the limitations "said base station" and "said mobile station" in line 8. There is insufficient antecedent basis for this limitation in the claim.

4. Claims 98, 116, and 134, recite the limitation "said time interval" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Art Unit: 2666

Claim 113 recites the limitations "said base station" and "said mobile station" in lines 7 and 8 respectively. There is insufficient antecedent basis for this limitation in the claim.

Claim 112 recites the limitations "said base station" and "said mobile station" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claims 21, 22, 24, 69, 70, 111, recite the limitations "said mobile station" and "said base station" in lines 8 and 9 respectively. There is insufficient antecedent basis for this limitation in the claim.

Claims 45 and 46, recite the limitations "said mobile station" and "said base station" in lines 9 and 10 respectively. There is insufficient antecedent basis for this limitation in the claim.

Claims 110, recites the limitations "said mobile station" and "said base station" in lines 7 and 8 respectively. There is insufficient antecedent basis for this limitation in the claim.

Art Unit: 2666

5. Claims 144-148 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The claims are dependent upon claim 132, which has been cancelled.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 4, 6, 8, 9, 11, 12, 15, 16, 19, 20, 23, 28, 30, 32, 33, 35, 36, 39, 40, 43, 44, 47, 52, 54, 59, 60, 64, 67, 68, 71, 74-79, 92-95, 99 - 102, 103 - 105, 108, 109, 112, 117- 123, 126, 130, 131, 135, 136-141, 144, 145, 148-161 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirohashi (US 5,600,471).

For this office action, the examiner maintains^a that Hirohashi teaches a vacant period (fig. 5B,C) see interval between packets (150), wherein the vacant period begins immediately after the first pilot signal of (fig. 5B element 151 or fig. 5C element 152 see first pilot signal of a group of

Art Unit: 2666

pilot signals) and ends immediately before the last pilot signal of (fig. 5B element 151 or fig. 5C element 152 see last pilot signal of a group of pilot signals).

Regarding claims 4, 6, 8, 9, 16, 19, 20, 23, 28, 30, 32, 33, 40, 43, 44, 47, 52, 54, 64, 67, 68, 71, 74-79, 92-95, 99 - 102, 105, 108, 109, 117- 120, 123, 126, 130, 135, 136, 137, 138, 141, 144, 149-161, Hirohashi teaches a method and apparatus for a mobile communication system (wireless, col. 2 lines 30-37).

Regarding claims 4, 6, 8, 9, 16, 19, 20, 23, 28, 30, 32, 33, 40, 44, 47, 52, 54, 64, 67, 74-79, 92, 99 - 102, 105, 117- 120, 123, 135-138, 156, 159 the system comprises a transmission control means for providing a vacant period (idle intervals, fig. 5 (A), col. 10 lines 11-13), in which no communication data is present, in one or more control frames, and inserting a first control signal which includes a pilot signal (fig. 5B signal 151, fig. 5C signal 152) to be used for at least one of demodulation of the communication data and transmission power control for a forward link in the vacant period (sets the amplification factor, col. 10 lines 31-37).

Art Unit: 2666

Regarding claims 4, 28, 30, 52, 74-77, 92, 99, 101, 117, 135, 137, 156, 159, the transmission control means provides a vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link (fig. 5B signal 151, fig. 5C signal 152 see first pilot signal of the group of pilot signals).

Regarding claims 6, 54, 100, 102, 118-120, 136, 138, 157, 160, the transmission control means transmits a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period (fig. 5B signal 151, fig. 5C signal 152 see last pilot signal of the group of pilot signals).

Regarding claims 8, 32, the transmission control means provides a vacant period from a timing immediately after a second control signal (fig. 5B signal 151, fig. 5C signal 152 see first pilot signal of the group of pilot signals) which includes a transmission power control information for a reverse link (sets the amplification factor, col. 10 lines 31-37, col. 8 lines 29-34: note two-way data transmission).

Art Unit: 2666

Regarding claim 9, 33, the transmission control means transmits a second control signal which includes a transmission power control information for a reverse link (sets the amplification factor, col. 10 lines 31-37, col. 8 lines 29-34: note two-way data transmission) immediately after end of said vacant period (fig. 5B signal 151, fig. 5C signal 152 see last pilot signal of the group of pilot signals).

Regarding claims 16, 40, 64, 78, 79, 105, 123, 141, 149-155, 158, 161, a transmission control means for providing a vacant period in which no communication data is present, in one or more communication frames (idle intervals, fig. 5 (A), col. 10 lines 11-13), from a timing immediately after a first control signal for maintaining communication quality (fig. 5B signal 151, fig. 5C signal 152 see first pilot signal of the group of pilot signals), and transmitting a second control signal for maintaining the communication quality immediately after end of said vacant period (fig. 5B signal 151, fig. 5C signal 152 see last pilot signal of the group of pilot signals).

The system comprises each of said first and second control signals being a pilot signal to be used for at least one of demodulation of the communication data and transmission power

Art Unit: 2666

control for a forward link (sets the amplification factor, col. 10 lines 31-37, col. 8 lines 29-34: note two-way data transmission).

Regarding claims 19, 43, 67, 108, 126, 144, the communication mode is switched into a mode wherein said vacant period is provided at a predetermined time interval (fig. 5B element 151, fig. 5C element 152). Note the predetermined time interval is immediately after the first pilot signal and immediately before last pilot signal.

Regarding claim 20, 23, 44, 47, 68, 71, 93, 94, 109, 112, 127, 130, 131, 145, 148, the communication mode is switched into mode wherein said vacant period is provided by issuing a notice (fig. 5B element 151, fig. 5C element 152, first pilot signal of a group of pilot signals) from said base station to said mobile station and from said mobile station to said base station. Note, as previously station the communication is two-way (col. 8 lines 29-34). The examiner corresponds the applicant's base station with the reference's wireless data transmission system (col. 1 lines 7-14) and the applicant's mobile with the references laptop (col. 1 lines 7-14).

Art Unit: 2666

Regarding claims 75, 77, 78, 92 - 95, 149, 151, and 153, in addition to the limitations previously presented, a quality measuring means (fig. 15 box 90, comparator, signal level is above a predetermined threshold, col. 16 line 63 - col. 17 line 1) and a transmitting means for generating and transmitting a TPC information for a forward link according to said reception quality (fig. 4A).

Regarding claims 76, 79, 150, 152, and 153, in addition to the limitations previously presented, a demodulation means (fig. 26 box 314A, 314B).

Regarding claims 11, 12, 15, 35, 36, 39, 59, 60, 103, 104, 121, 122, 139, 140, the said second control signal includes a transmission power control information for reverse link (sets the amplification factor, col. 10 lines 31-37, col. 8 lines 29-34: note two-way data transmission).

Art Unit: 2666

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 162-167 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirohashi in view of Dahlman (US 5,600,471).

Art Unit: 2666

Regarding claim 162, 166, and 167, Hirohashi teaches a mobile communication system including a base station and at least one mobile station. The examiner corresponds the applicant's base station with the reference's wireless data transmission system (col. 1 lines 7-14) and the applicant's mobile with the references laptop (col. 1 lines 7-14).

The system provides a vacant period (idle intervals, fig. 5 (A), col. 10 lines 11-13), in which no communication data is present, in one or more control frames, and inserting a first control signal which includes a pilot signal (fig. 5B signal 151, fig. 5C signal 152) to be used for at least one of demodulation of the communication data and transmission power control for a forward link in the vacant period (sets the amplification factor, col. 10 lines 31-37).

However, Hirohashi is silent on providing the vacant period by compressing data of the communication frame.

Dahlman teaches providing the vacant period by compressing data of the communication frame (col. 3 lines 19-30).

Therefore it would have been obvious to one of ordinary skill in the art, having both Hirohashi and Dahlman before him/her and with the teachings [a] as shown by Hirohashi, a vacant period, in which no communication data is present, in one or more control frames, and inserting a first control signal

Art Unit: 2666

which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in the vacant period, and [b] as shown by Dahlman, providing the vacant period by compressing data of the communication frame, to be motivated to modify the system of Hirohashi by compressing the data to produce the vacant period. This can be performed by using a lower spreading ratio (Dahlman: col. 3 lines 21-25). This would improve the system by providing a proven method for providing the vacant period.

Regarding claims 163, 165 - 167, a second control signal immediately after end of the vacant period (Hirohashi: fig. 5B signal 151, fig. 5C signal 152 see last pilot signal of the group of pilot signals).

Regarding claims 164 - 167, a vacant period immediately after a second control signal (Hirohashi: fig. 5B signal 151, fig. 5C signal 152 see first pilot signal of the group of pilot signals).

Art Unit: 2666

Allowable Subject Matter

11. Claims 3, 17, 21, 22, 24, 27, 41, 45, 46, 48, 51, 56, 57, 65, 69, 70, 80-82, 88, 95, 98, 110, 111, 113, 116, 128, 129, 134, 146, and 147 are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter.

Regarding claims 3, 27, 51, 98, 116, 134, Hirohashi teaches a method and apparatus for transmission control means for providing a vacant period, in one or more communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period (idle intervals, fig. 5 (A), col. 10 lines 11-13), wherein said transmission control means inserts said first control signal at a predetermined time interval (fig. 5A see vacant period in-between data packets), however, none of the prior art of record teaches or fairly suggests the said predetermined time interval of the first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame

Art Unit: 2666

which does not include any vacant periods. For support see (fig. 3, spec: pg. 23 line 19 - pg. 24 line 1).

Regarding claims 17, 41, 65, 80-82, and 88, Hirohashi teaches a transmission control means for providing a vacant period in which no communication data is present, in one or more communication frames (idle intervals, fig. 5 (A), col. 10 lines 11-13), from a timing immediately after a first control signal for maintaining communication quality (fig. 5B signal 151, fig. 5C signal 152 see first pilot signal of the group of pilot signals), and transmitting a second control signal for maintaining the communication quality immediately after end of said vacant period (fig. 5B signal 151, fig. 5C signal 152 see last pilot signal of the group of pilot signals).

Regarding claims 17, 41, 65, 80-82, and 88, however, none of the prior art of record teaches or fairly suggests the second control signal being a transmission power control for a **reverse link** and third control signal being a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a **forward link**.

Art Unit: 2666

Regarding claims 56 and 57, none of the prior art of record teaches or fairly suggests inserting a first control signal for transmission power control for a **forward link** in the vacant period and inserting a second control signal for TPC for the **reverse link**, in combination with the other limitations of the claim.

Regarding claims 21, 22, 24, 45, 46, 48, 69, 70, 95, 110, 111, 113, 128, 129, 146, 147, Hirohashi teaches the communication mode is switched into mode wherein said vacant period is provided by issuing a notice (fig. 5B element 151, fig. 5C element 152, first pilot signal of a group of pilot signals), however, none of the prior art of record teaches or fairly suggests the vacant period is dependent upon a link quality condition measured by the base station, as specified in claims 21, 24, 45, 48, 69, 95, 110, 128, 146, ; and the vacant period is dependent upon a congestion condition measured in the base station, as specified in claims 22, 46, 70, 111, 129, 147.

Response to Arguments

13. Claim 74 is rejected (applicant: pg. 55 paragraph). See rejection above.

Art Unit: 2666

14. Applicant's arguments, see pg. 56, filed 3/10/2004, with respect to 112 issues have been fully considered and are persuasive. The rejection has been withdrawn.

Regarding claims, 8, 9, 11, 19, 20, 23, 28, 32, 35, 43, 44, 47, 52, 59, 60, 67, 68, 71, 74, 95, 99, 101, 103, 105, 108, 109, 117-123, 126, 135-141, and 144, (applicant: pg. 55) the indicated allowability has been withdrawn in view of Hirohashi.


Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald Abelson whose telephone number is (703) 306-5622. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2666

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ronald Abelson
Examiner
Art Unit 2666

5/28/04


DANG TON
PRIMARY EXAMINER

Continuation of Disposition of Claims: Claims pending in the application are 3,4,6,8,9,11,12,15-17,19-24,27,28,30,32,33,35,36,39-41,43-48,51,52,54,56,57,59,60,64,65,67-71,74-82,88,92-95,98-105,108-113,116-123,126,128-131,134-141 and 144-167.

Continuation of Disposition of Claims: Claims allowed are 3, 17, 21, 22, 24, 27, 41, 45, 46, 48, 51, 56, 57, 65, 69, 70, 80-82, 88, 95, 98, 110, 111, 113, 116, 128, 129, 134, 146, and 147 are allowed.

Continuation of Disposition of Claims: Claims rejected are 4, 6, 8, 9, 11, 12, 15, 16, 19, 20, 23, 28, 30, 32, 33, 35, 36, 39, 40, 43, 44, 47, 52, 54, 59, 60, 64, 67, 68, 71, 74-79, 92-95, 99 - 102, 103 - 105, 108, 109, 112, 117- 123, 126, 130, 131, 135, 136-141, 144, 145, and 148-167.